

# Exhibit 32



## **INSULIN PRICE SHOCK**

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### **Body**

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Injectable insulin, which keeps some diabetics alive and keeps others out of serious health crises, has soared in price in the last few years.

"It is out of control," said Carol Hammond, 72, a diabetic who lives in North Philadelphia and survives on Social Security. "My rent isn't too bad, but after paying for insulin, I don't have much left."

Hammond said she skips buying or taking doses because her Medicare and Medicare Advantage health-

insurance plans don't always cover the cost of her insulin at the pharmacy counter. Her doctor helps her find it cheaper and gives her an occasional sample.

Express Scripts, the largest U.S. pharmacy-benefit manager, said the price of two prominent brand-name injectable insulins, Lantus and Humalog, rose 22.7 percent and 19.9 percent, respectively, from 2014 to 2015.

"Greed," Penn Medicine endocrinologist Mark Schutta said when asked about the cause.

"There are multiple reasons for this problem," said Barbara Simon, Hammond's physician and an endocrinologist at Drexel. "But, ultimately, it is really devastating for patients. I think it is wrong."

Manufacturers say research for future medicines involves some failures, which still must be paid for, and that recent changes in some insurance plans mean patients have to pay more.

"This means someone who previously paid \$25 to \$40 copay for a medicine could now face 'list price' costs of hundreds of dollars for a prescription until they meet their higher deductible," Eli Lilly & Co. spokesman Greg Kueterman said in a statement.

"Every day, we negotiate with health plans, pharmacy-benefit managers, and other intermediaries to make sure our medicines are accessible for as many people as possible," Novo Nordisk spokesman Ken Inchausti said in a statement.

But like other brand-name drugs, these so-called analog insulins have patent protection and slices of market exclusivity, which allows manufacturers to push for higher prices.

Even before University of Toronto researchers won the 1923 Nobel Prize in medicine for their discovery of insulin, the university gave Eli Lilly a license to make insulin "for humanitarian purposes," without requiring royalty fees. Similar licenses were later granted to other companies that now form the big three in insulin sales: Sanofi, Novo Nordisk, and Eli Lilly, maker of Humalog.

In 2014, Sanofi got \$6.93 billion in revenue from its long-acting insulin, Lantus, the best-selling brand and one of the best-selling drugs of any kind.

Insulin was discovered nearly 100 years ago. For about 60 years, it was extracted from the pancreases of pigs and cows and injected into humans. Next came so-called human insulin, synthetically created with recombinant DNA. In the mid-1990s, scientists altered the amino acid sequence of molecules to create analog insulins, which act quicker or more smoothly over a 24-hour period, depending on the type.

Insulin helps the body break down sugar and use it. A normal human pancreas secretes a small amount of insulin continuously, then an appropriate burst when a person eats something; it is able to distinguish the sugar differences between a celery stick and a double fudge sundae.

Type 1 diabetics produce no insulin. Without injections of it - via syringe, pen or pump - death can occur in days or a few weeks, and that's if a diabetic avoids carbohydrates, which contain sugars. Type 2 diabetics don't produce the correct amounts of insulin, and their bodies become insulin-

resistant. Some are treated with diet, insulin, or oral medication - a different multibillion-dollar sector of the pharmaceutical industry - or a combination of all three.

Even within America's for-profit health-care system, high drug prices are getting greater attention these days. Sometimes, it's new medicine, such as Gilead Sciences' hepatitis C drugs. Sometimes, it's older medicines, including insulin, that are protected by marketplace quirks and scientific circumstances.

Before he was arrested in mid-December, accused of securities fraud, and forced to resign as Turing Pharmaceuticals' CEO, Martin Shkreli drew scorn for boosting the price of an older life-saving drug from \$13.50 to \$750, then saying he wished he had raised it higher. But more established drugmakers raise prices whenever possible, if less dramatically. Even generic-drug companies, which were expected to continually lower the cost of drugs through competition, have raised prices when competitors leave the market.

Insulin manufacturers - which must answer to investors, large and small - worry that the price increases actually have crested, pushed down by pharmacy-benefit managers, insurers (public and private), and patients.

On Oct. 29, Sanofi CEO Olivier Brandicourt tried to console Wall Street analysts after telling them sales revenue for Lantus, 18.8 percent of the company's total revenue in 2014, was slowing and would be flat for 2015 through 2018. "I know that you will all need reassurance given the disappointment in diabetes over the past year," he said.

Though older forms of insulin can, sometimes, be acquired for less money, it takes time and care, by patient and doctor, to adjust dosages to avoid potentially deadly situations with too much or too little insulin in the body.

Most drugs are a combination of chemicals, and copies (generics) are relatively easy to make. Insulin involves biological substances, which are more difficult to copy. The Food and Drug Administration has moved carefully to devise a formula for evaluating the safety of such copies, called biosimilars. Eli Lilly will sell the first biosimilar for Lantus, but not until late December 2016 - timing resulting from settlement of a patent-infringement case Sanofi filed against Lilly.

Pharmacy-benefit managers are for-profit companies hired by insurers and large employers to manage drug plans and operate mail-order pharmacies. Express Scripts and CVS/Caremark, a subsidiary of CVS Health, are the two largest PBMs.

Express Scripts' chief medical officer, Steve Miller, said its clients spend more on diabetes than any other category. He said the historical "social contract" under which American health-care providers priced their products reasonably had "broken down" because of "extravagant" year-over-year price increases by drug companies.

"If not for Express Scripts using market forces to fight this, it would be worse," Miller said.

PBMs and insurers create formularies, lists of drugs they will cover and at what price to the patient. Secret negotiations with drugmakers are a big part of deciding what is on the list, and, if a manufacturer is willing to accept less, competing products are excluded. Savings are not necessarily passed on to the client, much less the patient. And changes to the list don't always reach patients.

Adam Fein, president of Philadelphia-based Pembroke Consulting Inc., wrote in a recent blog post that each big PBM is aligned with a different insulin maker for 2016. Express Scripts excluded two Novo Nordisk insulins in favor of Eli Lilly's brands, while CVS excluded Eli Lilly's insulins but included Novo Nordisk products. Both companies cover Sanofi's Lantus.

Jeff Bargull, a patient of Schutta's, said he is grateful that he has health insurance as a union carpenter, so he has to pay only \$150 of the \$1,100 cost for six bottles of insulin, which he injects into his body, drip by drip, through a pump to control the type 1 diabetes he has had for 19 of his 34 years.

Bargull has to make four or five such purchases a year. In the recession, he said, when his hours were cut and he had no union-paid health insurance, it was cheaper to buy an individual health-insurance policy than insulin.

"I have no choice," he said. "If I want to live, I have to pay for the insulin."

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## Graphic

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Photograph by: DAVID SWANSON / Staff Photographer

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